

## ABSTRACT OF THE DISCLOSURE

A process for producing valve metal oxides, such as tantalum pentoxide or niobium pentoxide with a narrow particle size distribution within a desired particle size range, is provided. According to the process of the present invention, the valve metal fraction from digestion of valve metal material containing ore is processed under controlled temperature, pH, and residence time conditions to produce the valve metal pentoxide and pentoxide hydrates. Also, disclosed are new tantalum pentoxide and niobium pentoxide products and new tantalum pentoxide precursors and niobium pentoxide precursors.

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